Black dots represent recovery locations of mallards banded at J. Clark Salyer National Wildlife Refuge in northern North Dakota from 1996-99.

The Duck Pipeline

Northern Plains Banding Project Documents Migration Patterns

Story and Photos by Craig Bihrle
Maps Provided by James Dubovsky, US Fish & Wildlife Service

One look at a map showing recovery locations of mallards banded in the northern Central Flyway in recent years, and you'd think every duck hunter in eastern Arkansas would sport a souvenir from North Dakota on his duck call lanyard.

Further consideration generates a more realistic view. While the map might have enough dots to blacken the area from the Mississippi River to Stuttgart, the actual number is small compared to the number of duck hunters. The black dots, however, represent a convincing pattern: A lot of mallards hatched on North Dakota's treeless prairie spend their winter making like wood ducks, flitting through flooded hardwoods or Mississippi River backwaters.

This pattern is not a new discovery. Waterfowl biologists, through numerous banding studies, have known for decades that the Lower Mississippi River Valley is a primary wintering ground for mallards raised in the Prairie Pothole Region of the northern U.S. and south central Canada. While a small percentage of Arkansas hunters have taken mallards wearing leg bands attached in North Dakota, it's likely that most of them regularly collect greenheads born and raised here.

A new, far-reaching banding project covering parts of North Dakota, South Dakota, Wyoming and Montana as well, supports migration patterns established from previous banding work. It also breaks new ground, attempting to gather, for the first time, migration information on ducks, primarily mallards, raised in these Central Flyway states but outside the Prairie Pothole Region.

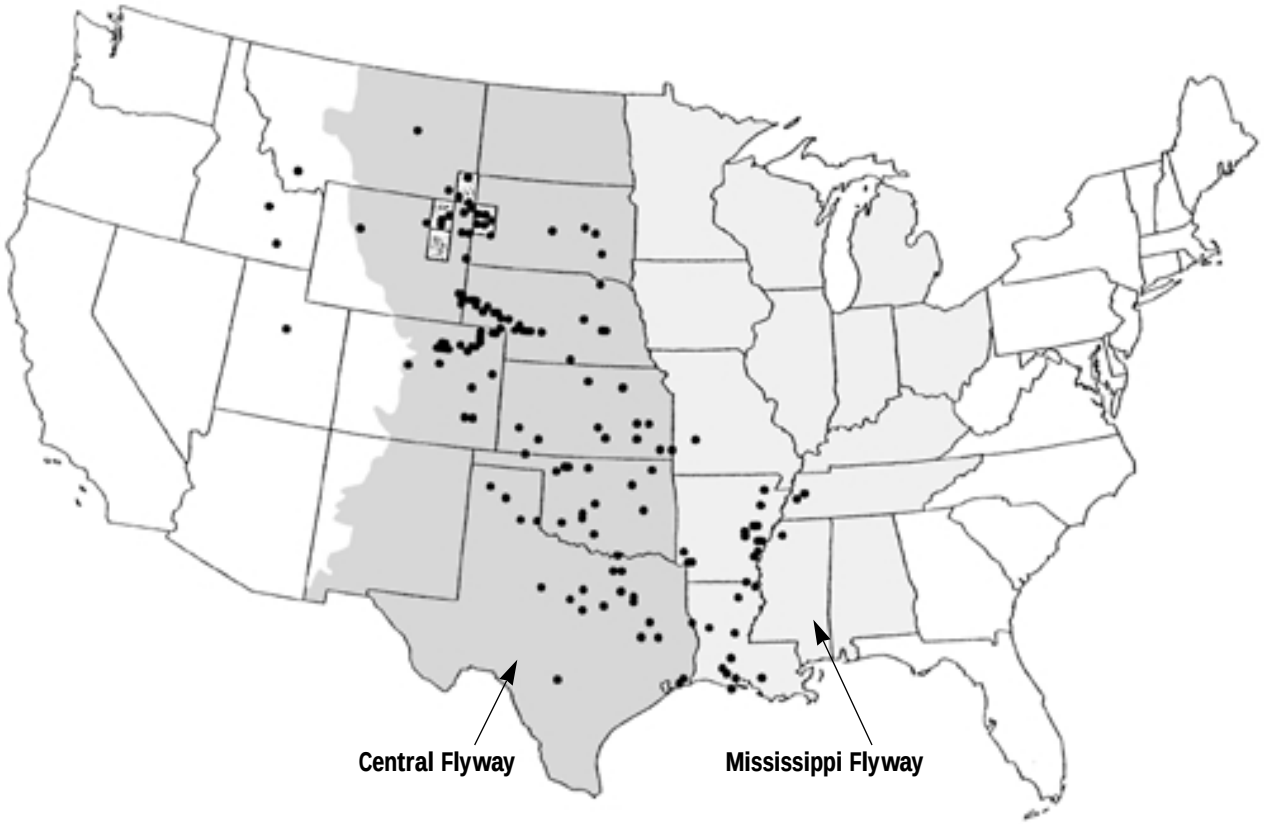
The premise is this: Do ducks raised west of the Missouri River – there's more of them than you might think – tend to migrate in a more southerly direction and winter in the Central Flyway? Or, do they follow the same pattern as birds raised east of the Missouri, in the Prairie Pothole Region, and largely cross into the Mississippi Flyway to winter in the Lower Mississippi River Valley.

The majority of band returns are helping establish a pattern – a useful body of knowledge that helps managers set hunting seasons and bag limits. It's the flyers, however, that invite curious hunters to ask, "Why didn't this bird follow the crowd?"

Not every bird banded in northeastern Wyoming, or western North Dakota, winds up in Arkansas. Some aren't even close, like the mallards captured at Lake Ilo National Wildlife Refuge in Dunn County, North Dakota, and recovered in southwestern Idaho. Or the Medicine Lake, Montana mallards retrieved in north central California, New York, and North Carolina.

It's also these flyers that magnify the importance of creating a large enough banding project to ensure valid patterns will emerge. That's why the ongoing Central Flyway Duck Banding Project is one of the largest

Jerry Feist (below, left) and Stan Kohn transport trapped ducks to shore for banding.
Inset: Securing a band.



Dots represent recoveries of mallards banded in western South Dakota and eastern Wyoming in 1998 and 1999. While some of these birds exhibited a more southerly migration than those banded in northern North Dakota, many wound up on the traditional southeastern flight pattern.

Duck Traps

Producing a trap full of ducks is no easy task. Banding crews try to place the wire traps in shallow water areas on wetlands that already have numerous ducks. Crew members spread grain inside the trap, then create a grain pathway to the trap's outside entrance.

Trapping begins in early August and ends in September, just prior to the youth waterfowl season. Crew members check their traps daily. Just about every kind of duck in the Central Flyway is represented in trap catches – and every duck caught is banded – but mallards, blue-winged teal and pintails are the most frequent visitors. Through the first five seasons, 42 percent of banded ducks are bluewings, 41.5 percent are mallards and 11.4 percent are pintails.

The teal catch is perhaps surprising because teal do not typically eat grain left

Free Phone Call Makes Band Reporting Easier

Hunters who bag a banded duck or goose almost always want to know the details.

One toll-free phone call can set the process in motion. For several years the U.S. Geological Survey has operated **1-800-327-BAND** (2263) to collect information on bands. Hunters and other citizens who collect banded birds can also submit information online at www.pwrc.usgs.gov.

In the past, hunters filled out a form and mailed it to the federal bird banding lab; responses often took several months. Now, response times are greatly reduced and people still receive a certificate containing information on when and where the bird was banded.

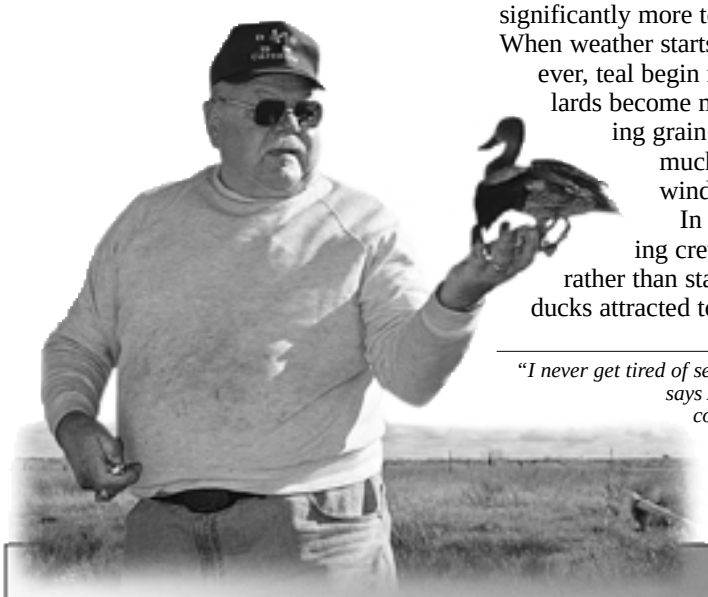
"It's (the 1-800 number) really increased our band reporting rate tremendously," according to Mike Johnson, Game and Fish Department waterfowl biologist. "It makes the bands we're putting on much more valuable. We're getting much more data per banding effort than we have in the past."

Forget the number or misplace the paper on which you wrote in down? No problem, the number is on bands placed on birds in recent years, and also included in waterfowl hunting guides. If the band on your bird doesn't have the number, it's probably an old-timer.

over in crop fields. But they must like grain in shallow water, Johnson said, because sometimes teal clean out a trap before mallards have a chance to get in.

Through August and into early September, North Dakota sites produce significantly more teal than mallards. When weather starts to turn colder, however, teal begin migrating, and mallards become more likely to start eating grain. The mallard catch is much higher as the project winds down each fall.

In some locations, banding crews use rocket nets, rather than stationary traps, to catch ducks attracted to shoreline bait sites.



"I never get tired of seeing a trap full of ducks," says Art Brazda (inset), field coordinator for the Central Flyway Duck Banding Project.

Wrapping Up

The 2001 field season is the last for the Central Flyway Duck Banding Project. "I think we're going to end up banding a quarter-million ducks," Johnson predicted. "That's a lot of bands."

It's also important information that could mean new opportunities for managing hunting seasons, or continuing support for current management schemes. "We've answered some things," Brazda noted, "and some things have opened our eyes a little bit."

As a bonus, by the end of the 2001-02 hunting season, more than 10,000 people will have bagged ducks banded as part of the project. Collectively, these birds create the big picture. Individually, a banded duck is always a special prize that adds insight to the waterfowl hunting experience.

***CRAIG BIHRLE** is the Game and Fish Department's communications supervisor.*

Blue-winged teal banded in Burleigh, Emmons and Kidder counties in central North Dakota from 1996-99 were recovered in far-ranging places beyond U.S. borders.

Teal Travels

Band recoveries clearly indicate blue-winged teal have a different migration mindset than mallards.

Investigate the accompanying map and you'll find many teal dots on the Texas and Louisiana Gulf Coast, long a major teal wintering area. But teal are obvious wanderers. Blue-winged teal banded in North Dakota since 1996 have been taken by hunters in Cuba, Venezuela, the Yucatan, and several Central American countries.

But only a few were recovered in North Dakota. By the time duck season starts, most North Dakota bluewings are usually well on their way south. In fact, a few teal banded in North Dakota were shot by hunters in Texas during that state's early teal season, before North Dakota's regular duck season began.

Band Recovery Records

(Birds banded and recovered through 1999-2000 hunting season)

Species	Number Banded	Number Recovered	Percent of Recoveries
Mallard	66,035	6,746	69.9
Blue-winged Teal	69,749	1,590	16.6
Pintail	16,908	823	8.5

Note: Recoveries are cumulative over four hunting seasons. Ducks banded and recovered in the same year indicate annual harvest rate. Mallards have the highest harvest rate of all ducks, but banding data indicate this annual harvest is only 6-7 percent of the overall population. Annual blue-winged teal harvest is only about 2.5 percent of the population.

banding studies ever initiated. It encompasses 14 locations in four states. After five years of operation, with one year to go, crews from Sand Lake National Wildlife Refuge in northeastern South Dakota, to Blaine County in north central Montana, have put metal bands on nearly 210,000 ducks.

Mallards are the most-wanted species, particularly adult hen mallards. Duck harvest management, says North Dakota Game and Fish waterfowl biologist Mike Johnson, is principally driven by mallard data, and much of that data is derived from banding.

The problem recognized by Central Flyway waterfowl managers is that mallard distribution, survival and harvest rates are based largely on one pre-season banding site in the U.S. and several in Canada. That one U.S. site is at J. Clark Salyer National Wildlife Refuge in Bottineau and McHenry counties in North Dakota, where ducks have been banded annually since the 1930s.

Do mallards banded at Salyer NWR represent mallards from other production areas in the Central Flyway? "I think we always assumed that probably wasn't the case," Johnson said.

The only way to find out was to put bands on birds in the northern part of the Central Flyway, before hunting seasons started, and wait for hunters to report recoveries. With four years of band recovery information to work with (2000 data is not completed yet), project managers are thoroughly analyzing return information from birds banded west of the Missouri. "One of the things we're starting to see," Johnson said, "is these birds aren't quite as Central Flyway oriented as we thought they were. We thought we would see more of a southward migration trend on birds from farther west, but we are still seeing a pull toward the Mississippi Flyway."

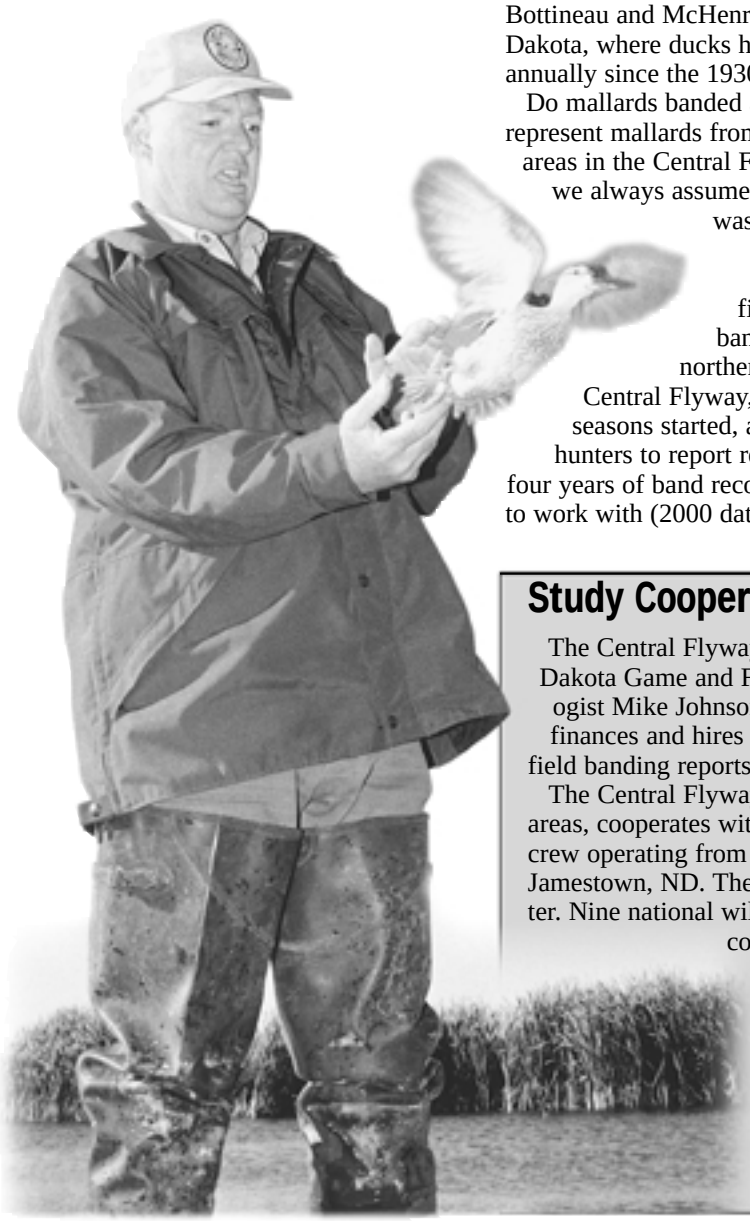
No Small Task

Banding ducks is highlight work for most field biologists, but a lot of preparation is necessary before the first numbered band is attached. Hiring people, selecting trapping sites, securing grain to bait the traps, and determining trapping time frame are just a few of the challenges. To set up and manage the field work, the Central Flyway coaxed Art Brazda out of retirement for three months each year.

A Mandan native, Brazda was a pilot biologist for the U.S. Fish and Wildlife Service, working in the Central Flyway, for more than 30 years. Part of his work involved aerial waterfowl surveys in northern Canada, as well as starting duck banding projects in the Canadian bush country, many of which are still in operation today.

Brazda works from the Game and Fish Department office in Bismarck, but visits as many stations as possible. "I never get tired of seeing a trap full of ducks," says the 78-year-old who banded thousands of birds before his post-retirement assignment.

Stan Kohn, Game and Fish migratory bird biologist, releases a banded hen pintail.



Study Cooperators

The Central Flyway Duck Banding Project is a study in cooperation. The North Dakota Game and Fish Department is significantly involved, with waterfowl biologist Mike Johnson serving as overall coordinator. Biologist Stan Kohn manages finances and hires crew members. Technician Jerry Feist handles data entry of all field banding reports from each North Dakota banding station.

The Central Flyway, through its member states, provides total funding for four areas, cooperates with Ducks Unlimited on one other, and provides materials for a crew operating from the Northern Prairie Wildlife Research Center near Jamestown, ND. The latter crew are all volunteer personnel from the research center. Nine national wildlife refuges and two federal wetland management districts contribute personnel, equipment and data.

DeSoto National Wildlife Refuge in Iowa was even part of the process, selling grain raised on the refuge to provide money crews could use to buy grain at elevators scattered around the four states.

The Lower Brule Sioux Tribe, Wildlife Management Institute, Bob Eng, Bozeman, Montana, USDA Wildlife Services, and many private landowners have also helped make this project a success.